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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/723,480

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EXAMINER

BRADLEY, MATTHEW A

ART UNIT

PAPER NUMBER

2187

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/723,480	Applicant(s) GOLDING, RICHARD A.	
	Examiner Matthew Bradley	Art Unit 2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2006.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-40 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

This Office Action has been issued in response to amendment filed 5 May 2006. Applicant's arguments have been carefully and fully considered in light of the instant amendment, but are moot in view of the new ground(s) of rejection as necessitated by amendment. Accordingly, this action has been made FINAL.

### ***Claims Status***

Claims 1-40 remain pending and are ready for examination.

### ***Claim Objections***

The objections to the claims made in the Office Action dated 8 February 2006 have been withdrawn in light of the instant amendment.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on, an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-2, 6-8, 10-11, 14-15, 19-21, 23-24, 27-28, 32-34, 36-37, and 40 are rejected under 35 U.S.C. 102(a) and 35 U.S.C. 102 (e) as being anticipated by Holland et al (U.S. 2003/0188097) herein after referred to as Holland.

As per independent claim 1, Holland teach,

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- storing a variably sized object capable of changing a number of bytes of data included therein in an object storage device; (Figure 7 as described in Paragraph 0050).
- temporarily storing a duplicate of said variably sized object in a second object storage device; (Figure 7 as described in Paragraph 0050). *The Examiner notes that the data files is initially stored in a RAID-1 and thus a duplicate is stored as per RAID-1 specifications.*
- converting said variably sized object into any of a grouped object Redundant Array of Independent Disks (RAID) layout and an individual RAID layout as said variably sized object changes in size; and (Paragraph 0062 and Paragraph 0063).
- discarding the duplicate variably sized object (Figures 9A-9C as described in Paragraph 0066).

As per independent claim 14, Holland teach,

- storing a variably sized object capable of changing sizes in a first object storage system; wherein said variably sized object is independent of any other object, and wherein a size of said variably sized object initially remains stable followed by a period of changing sizes followed by a period of being stable (Figure 7 as described in Paragraph 0050).
- mirroring said variably sized object; temporarily storing the mirrored variably sized object in a second object storage system; (Figure 7 as described in Paragraph 0050). *The Examiner notes that the data files is*

*initially stored in a RAID-1 and thus a duplicate is stored as per RAID-1 specifications.*

- converting said variably sized object into any of a grouped object Redundant Array of Independent Disks (RAID) layout and an individual RAID layout upon growth of said variably sized object; and (Paragraph 0062 and Paragraph 0063).
- discarding the mirrored variably sized object (Figures 9A-9C as described in Paragraph 0066).

As per independent claim **27**, Holland teach,

- a set of object storage devices; (Paragraph 0036) .
- a variably sized object capable of changing a number of bytes of data included therein in a first object storage device; (Figure 7 as described in Paragraph 0050).
- a redundancy data management controller operable for duplicating said variably sized object; (Figure 7 as described in Paragraph 0050). *The Examiner notes that the data files is initially stored in a RAID-1 and thus a duplicate is stored as per RAID-1 specifications.*
- a second object storage device operable for temporarily storing the duplicated variably sized object; (Paragraph 0036).
- a data converter operable for converting said variably sized object into any of a grouped object Redundant Array of Independent Disks (RAID) layout

and an individual RAID layout when said object changes in size; and  
(Paragraph 0062 and Paragraph 0063).

- a data purger operable for discarding the duplicated variably sized object  
(Figures 9A-9C as described in Paragraph 0066).

*Claim 40 is interpreted under 35 U.S.C. 112, 6<sup>th</sup> paragraph.*

The Court of Appeals for the Federal Circuit, in its en banc decision *In re Donaldson Co.*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994), decided that a "means-or-step-plus-function" limitation should be interpreted in a manner different than patent examining practice had previously dictated. The Donaldson decision affects only the manner in which the scope of a "means or step plus function" limitation in accordance with 35 U.S.C. 112, sixth paragraph, is interpreted during examination. Donaldson does not directly affect the manner in which any other section of the patent statutes is interpreted or applied.

When making a determination of patentability under 35 U.S.C. 102 or 103, past practice was to interpret a "means or step plus function" limitation by giving it the "broadest reasonable interpretation." Under the PTO's long-standing practice this meant interpreting such a limitation as reading on any prior art means or step which performed the function specified in the claim without regard for whether the prior art means or step was equivalent to the corresponding structure, material or acts described in the specification. However, in Donaldson, the Federal Circuit stated:

Per our holding, the "broadest reasonable interpretation" that an examiner may give means-plus-function language is that statutorily mandated in paragraph six. Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination. (MPEP 2181)

*Accordingly, the Examiner notes that the means or system/structure for practice of the invention disclosed in paragraph 0035 of applicant's specification is further taught in Holland in paragraph 0036.*

As per independent claim 40, Holland teach,

- means for storing a variably sized object in a first object storage system;  
(Paragraph 0036).
- means for mirroring said object; (Figure 7 as described in Paragraph 0050). *The Examiner notes that the data files is initially stored in a RAID-1 and thus a duplicate is stored as per RAID-1 specifications.*

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- means for temporarily storing the mirrored object in a second object storage system; (Figure 7 as described in Paragraph 0050). *The Examiner notes that the data files is initially stored in a RAID-1 and thus a duplicate is stored as per RAID-1 specifications.*
- means for converting said object into any of a grouped object Redundant Array of Independent Disks (RAID) layout and an individual RAID layout upon growth of said object; and (Paragraph 0062 and Paragraph 0063).
- means for discarding the mirrored object (Figures 9A-9C as described in Paragraph 0066).

As per dependent claims **2**, **15**, and **28** Holland teach, determining which of said grouped object RAID layout or individual RAID layout to convert said variably sized object into based on a size of the variably sized object being converted (Paragraph 0064).

As per dependent claims **6**, **19**, and **32** Holland teach, wherein said RAID layout comprises any of a RAID 5, a RAID 6, and a striped RAID layout (Paragraph 0050).

As per dependent claims **7**, **20**, and **33** Holland teach, wherein said step of converting occurs when a predetermined number of variably sized objects have been duplicated (Paragraph 0062). *The Examiner notes that the converting occurs as the one data file grows in size. Thus, a predetermined number, in this case one data file, has been duplicated anticipating the instant limitation.*

As per dependent claims **8**, **21**, and **34** Holland teach, wherein said step of converting occurs when said storage devices reach a limit on storage space (Paragraph

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0062). *The Examiner notes that the system of Holland converts the data file when the file grows beyond the size of the first stripe unit, thus anticipating the instant limitation of reaching a limit on storage space.*

As per dependent claim **10, 23, and 36** Holland teach, wherein said step of converting to a grouped object RAID layout further comprises forming a group of similarly sized objects in said grouped object RAID layout (Paragraph 0062).

As per dependent claim **11, 24, and 37** Holland teach, wherein said similarly sized objects comprise variably sized objects (Paragraph 0020).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **3-5, 9, 12-13, 16-18, 22, 25-26, 29-31, 35, and 38-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Holland as applied to claims 1-2, 6-8, 10-11, 14-15, 19-21, 23-24, 27-28, 32-34, 36-37, and 40 above, and further in view of Jacobson et al (U.S. 5,392,244) hereinafter referred to as Jacobson.

As per dependent claims **3, 16, and 29**, Holland teach the limitations as noted *supra*.

Holland does not explicitly teach the converted data object being integrated into a group of similarly sized objects.



Jacobson teach, selecting a group based on whether said group comprises other objects similarly sized to said variably sized object (Column 4 lines 39-42).

Holland and Jacobson are analogous art because they are from the same field of endeavor, namely data converting from one storage scheme to another storage scheme.

At the time of the invention it would have been obvious to one of ordinary skill in the art, having both the teachings of Holland and Jacobson before him/her, to combine the grouping features of Jacobson into the system of Holland for the benefit of maintaining objects in a group independent of the selected redundancy scheme for redundancy benefits as well as performance benefits.

The motivation for doing so would have been that, the RAID management system effectively “tunes” the storage resources of a memory system according to the application or user requirements ... (Column 5 lines 8-11 of Jacobson).

Therefore, it would have been obvious to combine Holland with Jacobson for the benefit of maintaining objects in a group independent of the selected redundancy scheme for redundancy benefits as well as performance benefits to obtain the invention as specified in claims 3-5, 9, 12-13, 16-18, 22, 25-26, 29-31, 35, and 38-39.

As per dependent claim **4**, **17**, and **30** the combination of Holland and Jacobson teach, wherein the similarly sized objects comprise variably sized objects capable of changing a number of bytes of data included therein (Paragraph 0020 of Holland).

As per dependent claim **5**, **18**, and **31** the combination of Holland and Jacobson teach, further comprising recomputing a parity of said group to include said variably sized object (Column 8 lines 15-20 of Jacobson)..

As per dependent claim **9**, **22**, and **35** the combination of Holland and Jacobson teach, wherein said step of converting occurs when a size of said variably sized object remains dormant for a predetermined period of time (Column 4 line 67 to Column 5 line 7 of Jacobson).

As per dependent claim **12**, **25**, and **38** the combination of Holland and Jacobson teach, further comprising removing the converted variably sized object from said grouped object RAID layout (Column 5 lines 8-22 of Jacobson).

As per dependent claim **13**, **26**, and **39** the combination of Holland and Jacobson teach, further comprising duplicating said converted variably sized object (Column 5 lines 8-22 of Jacobson). *The Examiner notes that as discussed supra, the system converts from mirrored storage to parity storage. The system can also convert from parity storage to mirrored storage. In an embodiment where data is often accessed frequently and then accessed less frequently but needed again, the system of Jacobson allows for the data to be converted from mirrored storage to parity storage back to mirrored storage. Accordingly, the system of Jacobson teaches the instant limitation as converting data from mirrored to parity back to mirrored thereby duplicating the converted object (data).*

### ***Response to Arguments***

Applicant's arguments have been carefully and considered but are moot in view of the new ground(s) of rejection as necessitated by amendment.

With respect to applicant's argument located within the first full paragraph on page 2 of the instant arguments (numbered as page 11) which recites:

*"These features are neither taught nor suggested in Jacobson, which explicitly teaches fixed-size blocks."*

The Examiner notes that as shown in the rejection *supra* and Holland (at least in paragraph 0020), the system allows for data files that can 'grow'.

Any argument not specifically addressed is considered moot in view of the new ground(s) of rejection as shown *supra*.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Bradley whose telephone number is (571) 272-8575. The examiner can normally be reached on 6:30-3:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BRP/mb

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Brian R. Reugh  
Primary Examiner  
7/24/00